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INVENTOR-INFORMATION:
NAME
YAMAGUCHI, TOSHIKAZU

ASSIGNEE-INFORMATION:
NAME COUNTRY
NIPPON TELEGR & TELEPH CORP <NTT> N/A

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ABSTRACT:

PURPOSE: To permit a user to execute all operations on the proceeding of a conference only by a pen input operation by permitting a conference terminal to request an operation right to a conference device based on the request of the user from a handwriting input means and a display output means.

CONSTITUTION: The conference terminal 3 generates an operation right request frame in an operation right request generation means 33 with pen-down from the handwriting input means and the display output means, which are connected, or the click of a mouse as an opportunity, and it transmits

the frame to the
conference device 1. The reception means 11 of the device
1 obtains the
operation right request frames from the respective
terminals 3 in an arriving
order. An operation right control means 12 refers to a
state management table
13 and judges whether the operation right request can be
received or not. When
it can be received, an operation right permission frame is
generated and it is
broadcast-transmitted from a broadcast transmission means
14 to all the
terminals 3. The user can execute all the operations on
the proceeding of the
conference such as handwriting input and screen display
only by the pen input
operation, and the users can equally acquire the operation
right with such
constitution.

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(71)出願人 000004226

日本電信電話株式会社
東京都千代田区内幸町一丁目 1 番 6 号

(72)発明者 山口 利和

東京都千代田区内幸町 1 丁目 1 番 6 号 日
本電信電話株式会社内

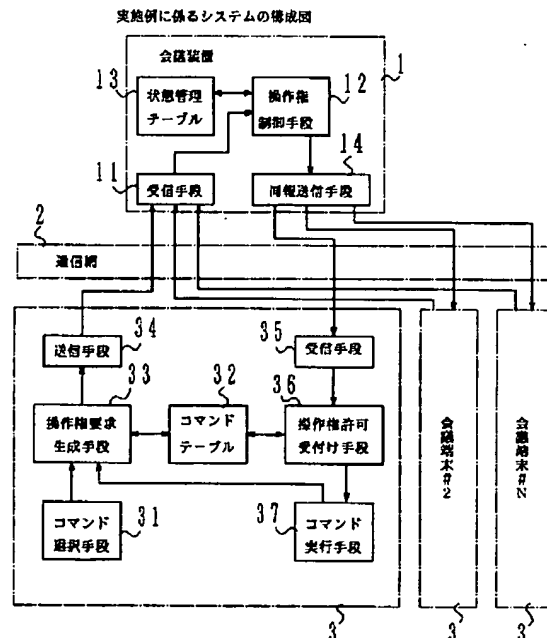
(74)代理人 弁理士 磯村 雅俊

(54)【発明の名称】 多地点通信会議システム

(57)【要約】

【目的】 手書き入力手段や表示出力手段からの利用者の要求に基いて、会議端末が会議装置に操作権を要求することにより、利用者が会議進行に関するすべての操作をペン入力操作だけで行うことが可能な多地点通信会議システムを提供すること。

【構成】 会議端末に接続された手書き入力手段や表示出力手段からの、ペンダウン(ペン接近)あるいはマウスのクリック等を契機として、会議端末が会議装置に操作権を要求することにより、利用者が手書き入力や画面表示等の会議進行に関するすべての操作をペン入力だけで行うことを可能とした多地点通信会議システム。



【特許請求の範囲】

【請求項1】 音声情報の加算、画像情報の合成および分配を行う1台の会議装置と複数台の会議端末とが通信手段を介して接続され、同時に会議を行う多地点通信会議システムにおいて前記各会議端末に、手書き入力手段と表示出力手段とを接続し、すべての前記会議端末の前記表示出力手段に、同一内容の画面(共有画面)を表示し、手書き入力や画面表示等の会議の進行に関する操作を前記手書き入力手段から指示する如く構成するとともに、前記会議装置が一元的に本多地点通信会議システムの状態を管理し、前記各会議端末が、当該会議端末内の前記手書き入力手段により行った操作指示を契機として、前記会議装置に操作権を要求した場合に、前記会議装置は、複数の前記会議端末からの操作権要求の中から、前記共有画面に矛盾の起きない一つの操作権要求を選択し、当該操作権要求の内容を、直ちに全会議端末に折返し送信することにより、全会議端末の状態を遷移させる多地点間の会議操作の競合制御手段を有することを特徴とする多地点通信会議システム。

【請求項2】 請求項1記載の各手段に加え、更に、前記各会議端末が手書き入力を行う場合に、前記操作権要求から、前記会議装置によって操作権を与えられるまでに入力された手書き入力信号を蓄積しておき、操作権を与えられた時点で、蓄積しておいた手書き入力信号を前記表示出力手段に表示するとともに、前記会議装置を介して前記全会議端末に送信する制御手段を有することを特徴とする多地点通信会議システム。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、通信網に1台の会議装置と複数の会議端末とを接続して構成する多地点通信会議システムに関し、特に、広い地域に分散された複数地点の通信相手と会議端末を利用して会議を行う場合に有効な多地点通信会議システムに関するものである。

【0002】

【従来の技術】従来のこの種の多地点通信会議システムとしては、例えば、渡辺、阪田、前野等による「マルチメディア分散在席会議システム「MERMAID」」(情報処理学会論文誌, Vol. 32, No. 9, pp. 1200-1209)に開示されたシステムが知られている。このシステムは、以下の3つのモードを設け、操作権を1台の会議端末に与えて、順番に操作権を引き継いでいくことにより、共有画面内容の一貫性を保つようにしているものである。

(1)議長指名モード:議長が次の保有者を指名することにより、操作権が移行するモード。

(2)操作権を最も早く要求した人に移行するモード。操作権保有者が操作権を放棄したときに次に移行する。

(3)ボタンモード:ボタンタッチのように、現在の操作権保有者が次の人を指名して実行するモード。

【0003】

【発明が解決しようとする課題】上記従来技術においては、会議端末の利用者が、会議操作の前(後)に、必ず、操作権を獲得(解放)するための手順を実行しなければならない。更に、議長指名モードやボタンモードを指定した場合、次に操作権を与える人を指名する必要がある。このようなヒューマンインタフェースでは、利用者が操作権獲得手順を意識する必要があるため、思考が中断されて会議の効率が悪くなったり、操作権の獲得に時間がかかり、会議時間が長くなるという問題があった。本発明は上記事情に鑑みてなされたもので、その目的とするところは、従来の技術における上述の如き問題を解消し、会議端末に接続された手書き入力手段や表示出力手段からの、ペンダウン(ペン接近)あるいはマウスのクリックを契機として、会議端末が会議装置に操作権を要求することにより、利用者が手書き入力や画面表示等の会議進行に関するすべての操作をペン入力操作だけで行える多地点通信会議システムを提供することにある。また、本発明の他の目的は、会議装置が、共有画面に矛盾が起きない操作権要求のみを選択することにより、利用者が手順を意識することなしに、平等に操作権を獲得可能な多地点通信会議システムを提供することにある。

【0004】

【課題を解決するための手段】本発明の上記目的は、音声情報の加算、画像情報の合成および分配を行う1台の会議装置と複数台の会議端末とが通信手段を介して接続され、同時に会議を行う多地点通信会議システムにおいて、前記各会議端末に、手書き入力手段と表示出力手段とを接続し、すべての前記会議端末の前記表示出力手段に、同一内容の画面(共有画面)を表示し、手書き入力や画面表示等の会議の進行に関する操作を前記手書き入力手段から指示する如く構成するとともに、前記会議装置が一元的に本多地点通信会議システムの状態を管理し、前記各会議端末が、当該会議端末内の前記手書き入力手段により行った操作指示を契機として、前記会議装置に操作権を要求した場合に、前記会議装置は、複数の前記会議端末からの操作権要求の中から、前記共有画面に矛盾の起きない一つの操作権要求を選択し、当該操作権要求の内容を、直ちに全会議端末に折返し送信することにより、全会議端末の状態を遷移させる多地点間の会議操作の競合制御手段を有することを特徴とする多地点通信会議システム、および、上述の各手段に加え、更に、前記各会議端末が手書き入力を行う場合に、前記操作権要求から、前記会議装置によって操作権を与えられるまでに入力された手書き入力信号を蓄積しておき、操作権を与えられた時点で、蓄積しておいた手書き入力信号を前記表示出力手段に表示するとともに、前記会議装置を介して前記全会議端末に送信する制御手段を有することを特徴とする多地点通信会議システムによって達成される。

【0005】

【作用】本発明に係る多地点通信会議システムにおいては、利用者による、会議端末に接続された手書き入力手段や表示出力手段からの、ペンダウン(ペン接近)またはマウスのクリック等によるコマンド選択を基に、会議端末がコマンドテーブルを検索し、その検索結果を使用して操作権要求フレームを作成し、通信手段を介して会議装置に送信する。会議装置は、状態管理テーブルを使用して、操作権要求を受け付け可能か否かを判断し、受け付け可能である場合には、状態管理テーブルを更新した後、操作権許可フレームを作成し、通信手段を介して全会議端末に同報送信する。各会議端末は、操作権許可フレームを基に、コマンドテーブルを検索してコマンドを獲得し、当該コマンドを起動する。本発明に係る多地点通信会議システムにおいては、上述の如き動作を可能としたことにより、多地点間の会議操作の競合制御を実現し、利用者が、手書き入力や画面表示等の会議進行に関するすべての操作を、ペン入力操作だけで行うことが可能となり、また、手順を意識せずに平等に会議操作を行うことが可能になることから、操作権獲得のために思考が中断されたり、操作権の獲得に時間がかかったりすることがなくなるので、会議時間を短縮するとともに、通信網の使用料を削減できるものである。

【0006】

【実施例】以下、本発明の実施例を図面に基づいて詳細に説明する。図1は、本発明の一実施例に係る多地点通信会議システム(以下、単に「システム」という)の構成図である。図において、1は会議端末3に対して情報の収集および分配を行う会議装置、2は会議装置1と複数の会議端末3とを接続する通信網、3は通信網2を介して会議を行う会議端末(＃1～＃N)である。上述の会議装置1は、会議端末3からの操作権要求フレームを受信する受信手段11と、該受信手段11で受信した操作権要求フレームから、後述する状態管理テーブル13を参照して操作権要求を受け付け可能か否かを判断し、受け付け可能な場合には操作権許可フレーム作成する操作権制御手段12と、現システム状態および各会議端末3の状態を示す情報を登録する状態管理テーブル13と、通信網2を介して操作権許可フレームを全会議端末(＃1～＃N)に同報送信する同報送信手段14から構成されている。なお、操作権制御手段12は、上述の状態管理テーブル13の内容の更新等の管理も実行する。

【0007】また、会議端末3は、操作権要求時、メニュー選択、アイコン選択等のオペレータ操作により1個のコマンド名を取得するコマンド選択手段31と、コマンドを識別するコマンドコード21、現システム状態でコマンドを起動可能かどうかの判断を行うためのチェックコード22、コマンド実行中の状態を設定するパーミッションコード23から構成される起動コード(詳細は、後述する)と、コマンド名のセットから構成されるコマンドテーブル32と、上記コマンド選択手段31か

ら受領したコマンド名を基に、コマンドテーブル32を検索して該当する起動コードを取得し、操作権要求フレームを生成する操作権要求生成手段33と、会議装置1から受信した操作権許可フレームから起動コードを取り出し、取り出した起動コードを基に、前述のコマンドテーブル32を検索して該当するコマンド名を取得する操作権許可受け付け手段36と、該操作権許可受け付け手段36から受領したコマンド名を使用して、コマンドを起動するコマンド実行手段37とを備えている。なお、図1中の34、35は会議端末3から通信網2を介して会議装置1へのデータの送受信を行うための送信手段および受信手段を示している。

【0008】図2に、上述の操作権要求フレームと、操作権許可フレームのフォーマットの一例を示す。上述の操作権要求フレームまたは操作権許可フレームは、端末番号と起動コードから構成されている。

(1)端末番号：操作権要求フレームの場合：会議装置に操作権を要求する会議端末の端末番号を示す。操作権許可フレームの場合：会議装置が操作権を与えた会議端末の端末番号を示す。

(2)起動コード：操作権要求フレームの場合：操作権要求の内容および会議装置が操作権要求の受け付け判断に使用する制御情報を示す。操作権許可フレームの場合：会議装置が操作権を与えた操作権要求内容を示す。起動コードは、以下に示すコマンドコード、チェックコードおよびパーミッションコードから構成される。

【0009】(a)コマンドコード(21)：操作権要求の内容を示すものであり、手書き入力、画面スクロール、画面縮小、印刷等がある。

(b)チェックコード(22)：会議装置が操作権要求の受け付け判断に使用する制御情報である。コマンドの処理種別を示し、コマンドコードと1:1に設定される。処理種別としては、手書き入力処理、ポインティング表示処理、全会議端末が同期してコマンドを実行するオンライン処理、1台の会議端末が単体でコマンドを実行するオフライン処理がある。

(c)パーミッションコード(23)：コマンドを実行中に、同時に実行可能な処理種別を示し、コマンドコードと1:1に設定される。

通信会議システムで使用する各種処理のチェックコードおよびパーミッションコードの設定例を図7に示す。図7に示した例では、例えば、1台の会議端末がポインティング表示処理中であっても、他の会議端末がポインティング表示処理を要求すれば受け付けられ、複数台の会議端末が、同時に、ポインティング表示処理を実施可能である。また、同様に、複数台の会議端末が、同時に、印刷処理のようなオフライン処理を実施可能である。

【0010】以下、上述の如く構成された本実施例のシステムにおける操作権獲得手順を、図3に基づいて説明する。

(1)会議端末設置時の設定：利用者が選択するメニュー項目と1:1に起動コードを決定し、全会議端末に同一の値を設定する。

(2)会議中の操作権獲得手順：会議端末が操作権を獲得する手順を、以下に述べる。

(a)利用者は、ペン入力によりメニュー項目を選択する。会議端末は、ペンダウンを契機として、前述の如き動作により、操作権要求生成手段33でメニュー項目に対応する起動コードを取得し、これを基に、操作権要求フレームを作成して、会議装置に送信する(図3の①)。

(b)会議装置は、各会議端末からの操作権要求フレームを到着順に取得し、表示出力手段の画面内容に矛盾が起きない操作権要求を受付ける。画面内容に矛盾が起きる場合には、操作権要求を破棄する(図3の②)。

【0011】(c)会議装置は、操作権要求を受付ける際に、操作権許可フレームを作成して、全会議端末に同報送信する(図3の③)。

(d)会議端末は、操作権許可フレームを受信し、その結果、操作権が与えられれば、メニュー項目に対応するコマンドを実行する(図3の④)。

(e)会議端末は、コマンドの処理終了後、「操作権要求待ち」を示す操作権要求フレームを会議装置に送信する(図3の⑤)。

(f)会議装置は、操作権を有する会議端末からの操作権要求フレームを受付ける(図3の⑥)。

(g)会議装置は、「操作権要求待ち」を示す操作権要求フレームを全会議端末に同報送信する(図3の⑦)。

上述の一連の手順を繰り返すことにより、利用者が会議操作を行うことが可能になる。次に、システムの状態管理方法等について説明する。

【0012】システムの状態は、以下のように定義される。会議装置は、システムの状態を管理し、チェックコードとパーミッションコードをトリガに、状態を遷移させる(図4および図5参照)。

①操作権要求待ち状態(図4の状態：S₀)アイコン画面状態。

②操作権要求待ち状態2(図4の状態：S₃)メニュー画面状態。①の状態からメニュー画面移行の操作権要求を受付けることにより遷移し、オンライン処理、オフライン処理の操作権要求を受付け可能である。

③オフライン処理中状態(図4の状態：S₇)他の会議端末からのオフライン処理の操作権要求に限り受付け可能である。

④ポインティング表示処理中状態(図4の状態：S_d)他の会議端末からのポインティング表示処理の操作権要求に限り受付け可能である。

【0013】⑤手書き処理中状態(図4の状態：S_{1f})他の会議端末からの如何なる操作権要求も受付け不可である。

⑥オンライン処理中状態(図4の状態：S_{4f})他の会議端

末からの如何なる操作権要求も受付け不可である。

次に、操作権要求の受付け判断方法について説明する。会議装置は、システムの状態を利用して、画面内容に矛盾が起きないように操作権要求の受付け判断を行う。上述のシステムの状態に対応してシステム状態コードが付与され、状態：S_{nn}のnと定義されている。システム状態コード0, 3, 7, d, fの値を取り得る。受付け判断の処理手順を、以下に示す。

(a)会議装置は、操作権要求フレームを取得する(図4のP₆)。

(b)会議装置は、チェックコードとシステム状態コードとの論理積を計算する(図4のP₇)。

(c)計算結果が「0」であれば、操作権要求を受付ける(図4の「OK」)。一方、結が「0」でない場合は、操作権要求を破棄する(図4の「-OK」)。

【0014】以下、手書き入力処理を例として、図6に示タイムチャートを用いて操作権獲得手順を説明する。

(a)会議端末設置時、手書き入力処理の起動コードを「0x011f」、操作権要求待ちの起動コードを「0x0000」と設定する。

(b)アイコン画面が表示されている場合、システムの状態はS₀であり、システム状態コードは「0」である。

(c)ペンダウンにより、会議端末は操作権要求フレーム(起動コード＝「0x011f」)を会議装置に送信する(図6の①)。

(d)会議端末は、操作権を獲得するまで、手書き入力信号を蓄積する。この状態は、図6の①と②の間にあたる。

(e)会議装置は、チェックコード(「1」)とシステムの状態コード(「0」)の論理積を計算し、結果が「0」であるため、操作権要求を受付ける。更に、チェックコードとパーミッションコード(「1f」)をトリガとして、システムの状態を、S₀からS_{1f}に遷移させる。その結果、システム状態コードは、「f」となる。その後、操作権許可フレーム(起動コード＝「0x011f」)を同報送信する。

【0015】(f)会議装置から、自会議端末番号の操作権許可フレームを受信することにより、操作権を獲得する(図6の②)。当該会議端末は、蓄積している手書き入力信号を表示出力手段に表示するとともに、会議装置経由で、他の会議端末に送信する。

(g)当該会議端末は、操作権を保有している間、手書き入力信号を表示出力手段に表示するとともに、会議装置経由で、他の会議端末に送信する。この状態は、図6の②と③の間にあたる。

(h)操作権を保有している会議端末の利用者が、ペンアップして一定時間が経過すると、当該会議端末は、操作権要求フレーム(起動コード＝「0x0000」)を会議装置に送信する(図6の③)。

(i)会議装置は、チェックコード(「0」)とシステムの状態コード(「f」)の論理積を計算し、結果が「0」であるた

め、操作権要求を受付ける。更に、チェックコードとパーミッションコード(100)をトリガとして、システムの状態をS_{1f}からS₀に遷移させる。その結果、システム状態コードは10となる。その後、操作権許可フレーム(起動コード=10x0000)を、同報送信する。

【0016】(j)会議装置から操作権許可フレームを受信することにより、全会議端末は操作権が解放されたことを知る。これにより、全会議端末は、操作権要求待ち状態に遷移する。

上記実施例によれば、利用者のペンダウン(ペン接近)あるいはマウスのクリック等を契機として会議装置に操作権を要求し、会議装置の状態管理テーブルを利用して、会議端末からの操作権要求を受け可能か否かを判断し、受け可能であれば、操作権許可フレームを全会議端末に同報送信し、各会議端末は操作権許可フレームを基に当該処理を実行するようにしたので、多地点間の会議操作の競合制御を実現でき、利用者が手書き入力や画面表示等の会議進行に関するすべての操作をペン入力操作だけで行えるようになり、手順を意識せずに平等に会議操作を行えることから、操作権獲得のために思考が中断されたり、操作権の獲得に時間がかかったりすることがなくなり、会議時間を短縮できるとともに、通信網の使用料を削減できるという効果が得られる。なお、上記実施例は本発明の一例を示したものであり、本発明はこれに限定されるべきものではないことは言うまでもないことである。

【0017】

【発明の効果】以上、詳細に説明した如く、本発明によれば、会議端末に接続された手書き入力手段からの、ペ

ンダウン(ペン接近)またはマウスのクリックを契機として、会議端末が会議装置に操作権を要求することにより、利用者が手書き入力や画面表示等の会議進行に関するすべての操作をペン入力だけで行えるとともに、操作権の獲得手順を意識せず平等に会議操作を行えるようにした多地点通信会議システムを実現できるという顕著な効果を奏するものである。

【図面の簡単な説明】

【図1】本発明の一実施例に係る通信会議システムの構成を示すブロック図である。

【図2】実施例に係る操作権要求フレームおよび操作権許可フレームのフォーマットを示す図である。

【図3】実施例に係る操作権獲得手順の説明図である。

【図4】実施例に係るシステムの状態遷移図である。

【図5】図4中の記号の説明図である。

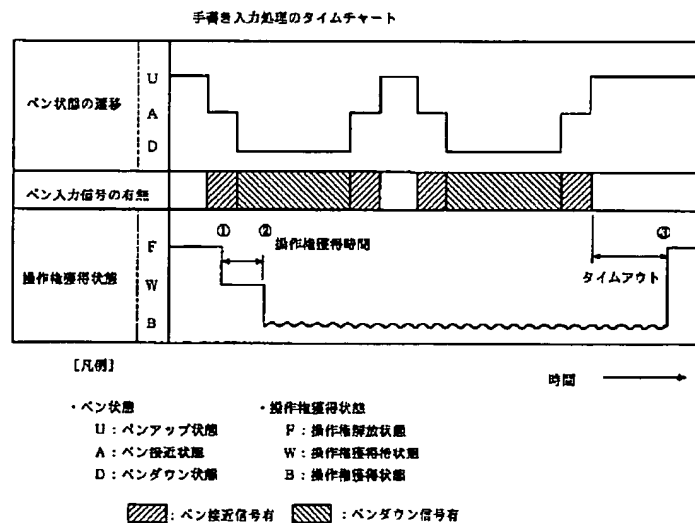
【図6】実施例に係る手書き入力処理のタイムチャートである。

【図7】実施例に係るチェックコードおよびパーミッションコードの設定例を示す図である。

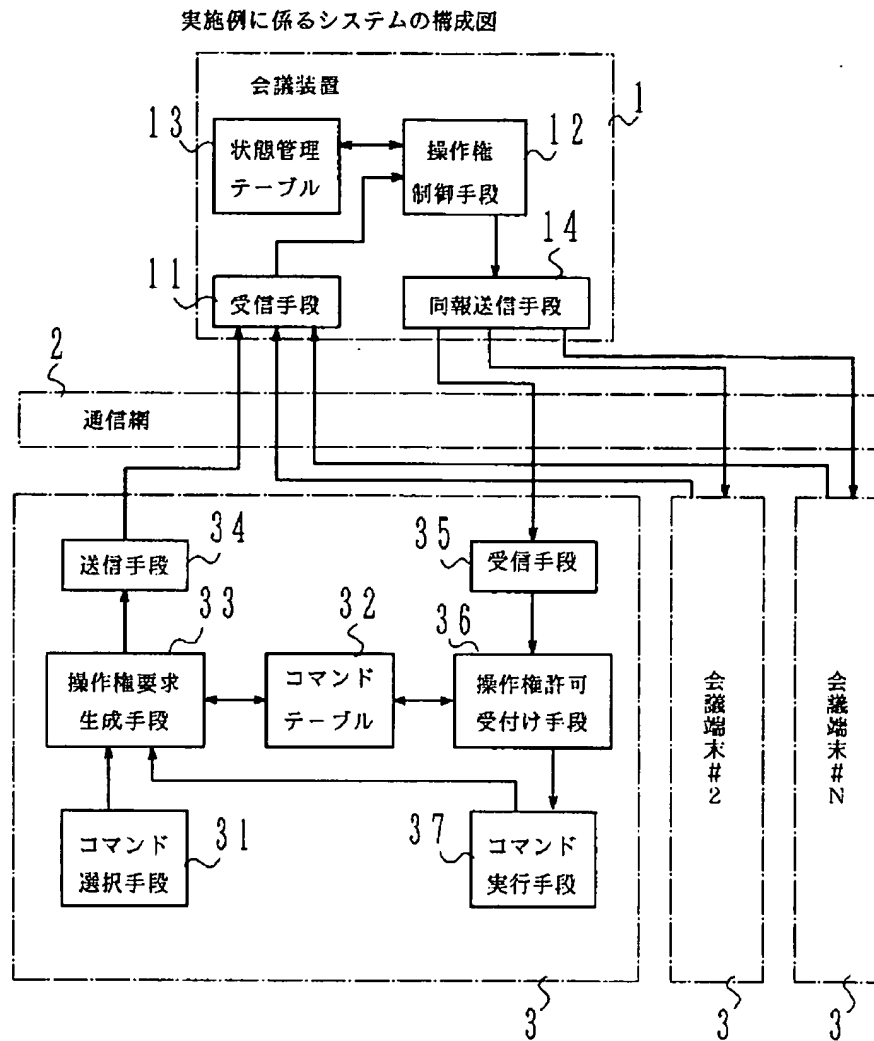
【符号の説明】

1：会議装置、2：通信網、3：会議端末(#1～#N)、11：受信手段、12：優先権制御手段、13：状態管理テーブル、14：同報送信手段、21：コマンドコード、22：チェックコード、23：パーミッションコード、31：コマンド選択手段、32：コマンドテーブル、33：操作権要求生成手段、34：送信手段、35：受信手段、36：操作権許可受け手段、37：コマンド実行手段。

【図6】



【図1】

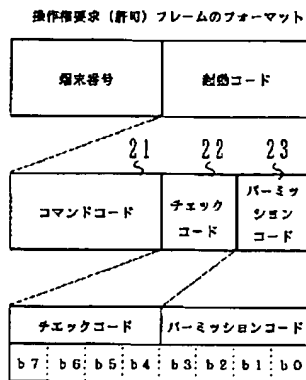


【図7】

チェックコードおよびパーミッションコードの設定例

処理名	チェックコード	パーミッションコード
手書き入力処理	0 0 0 1	1 1 1 1
ポインティング表示処理	0 0 1 0	1 1 0 1
画面縮小処理	0 1 0 0	1 1 1 1
印刷処理	1 0 0 0	0 1 1 1

【図2】



(注)

・チェックコードのビットの意味

b 7 : オフライン処理

b 6 : オンライン処理

b 5 : ポインティング表示処理

b 4 : 手書き入力処理

・パーミッションコードの意味

b 3 : オフライン処理禁止

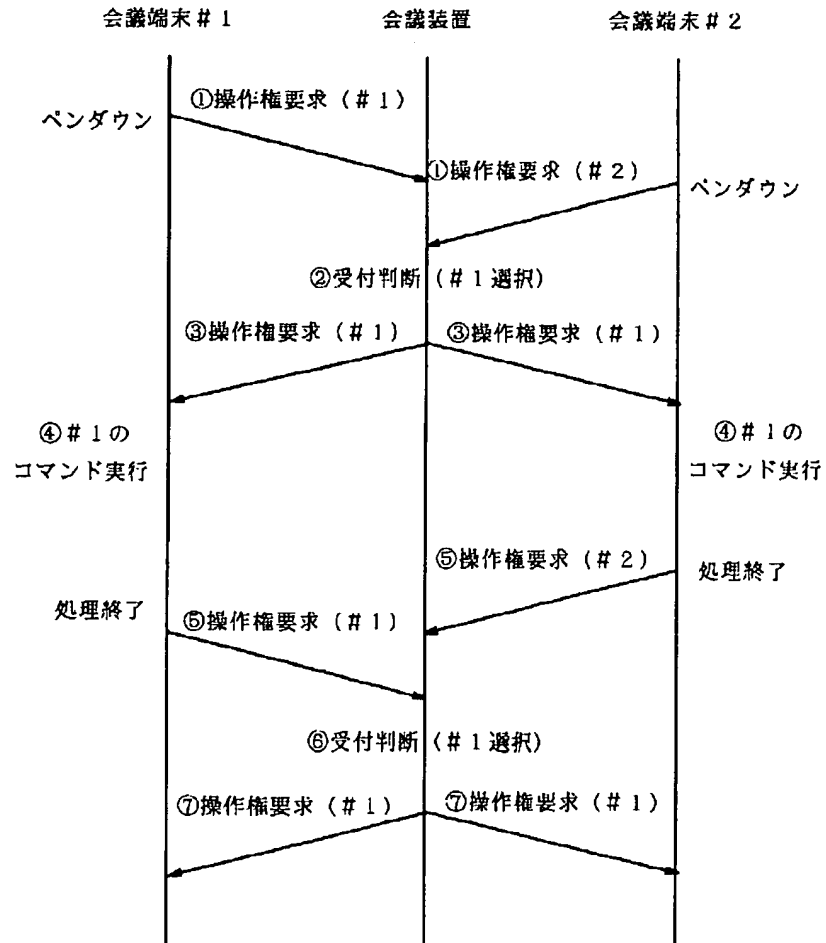
b 2 : オンライン処理禁止

b 1 : ポインティング表示処理禁止

b 0 : 手書き入力処理禁止

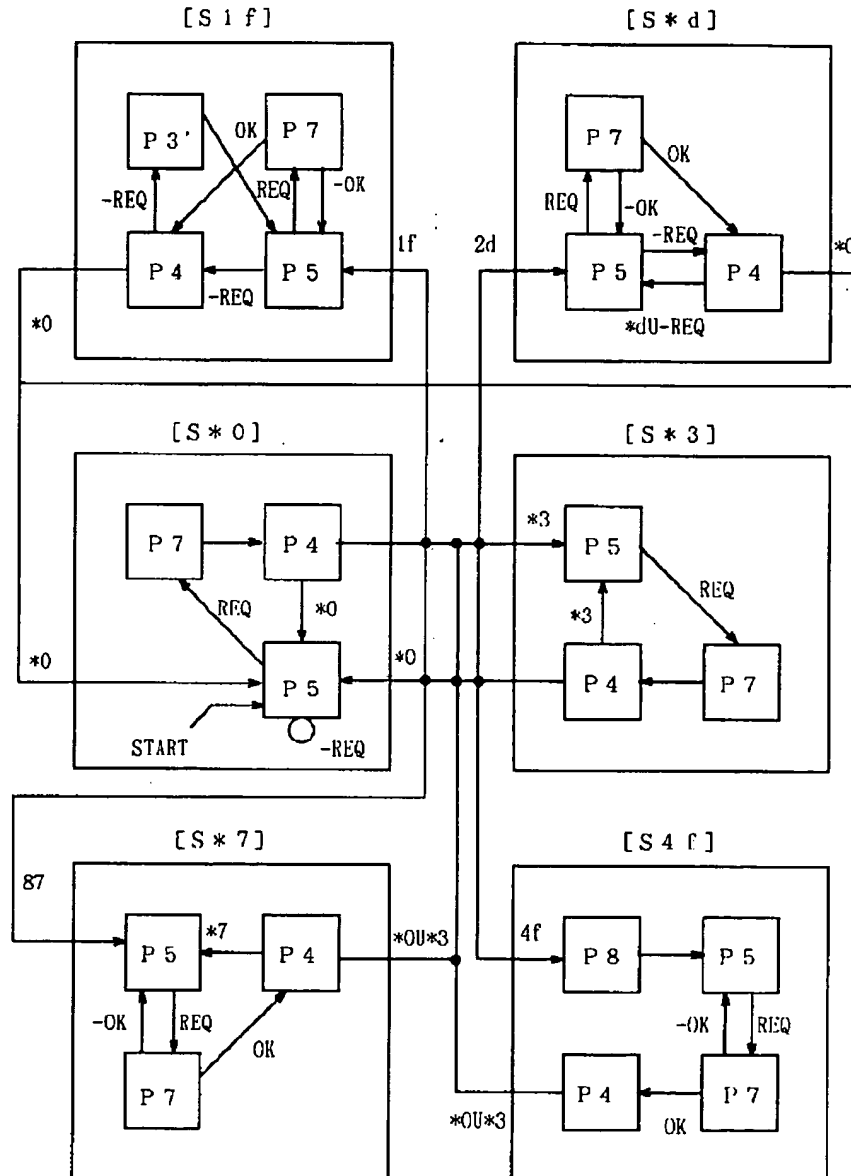
【図3】

操作権獲得手順



【図4】

システム状態遷移図



【図5】

・状態

S*0 : 操作権要求待状態1 (アイコン状態)

S*3 : 操作権要求待状態2 (メニュー状態)

S*7 : オフライン処理中状態

S*d : ポインティング表示処理中状態

S1f : 手書き処理中状態

S4f : オンライン処理中状態

P3' : 表示処理中状態

P4 : 同報送信処理状態

P5 : 受信処理中状態

P7 : 操作権要求受付処理状態

P8 : AP処理中状態

・遷移条件

REQ (¬REQ) : 操作権要求有 (無)

OK (¬OK) : 操作権要求受付 (破棄)

ij :

i = チェックコード

j = パーミッションコード

* = don't care

U : OR条件

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : NIPPON TELEGR & TELEPH CORP
<NTT>

(22)Date of filing : 21.10.1992

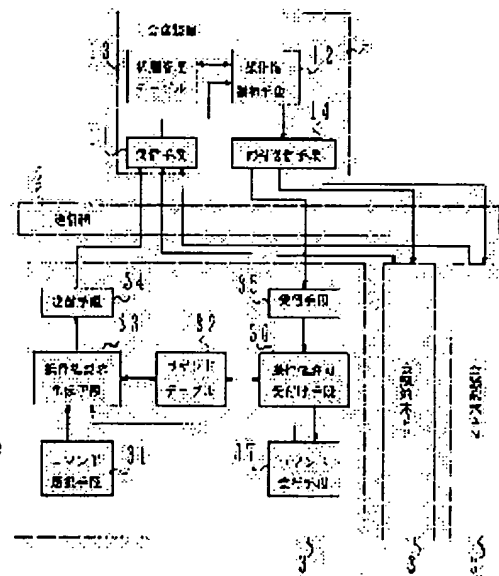
(72)Inventor : YAMAGUCHI TOSHIKAZU

(54) MULTI-SPOT COMMUNICATION CONFERENCE SYSTEM

(57)Abstract:

PURPOSE: To permit a user to execute all operations on the proceeding of a conference only by a pen input operation by permitting a conference terminal to request an operation right to a conference device based on the request of the user from a handwriting input means and a display output means.

CONSTITUTION: The conference terminal 3 generates an operation right request frame in an operation right request generation means 33 with pen-down from the handwriting input means and the display output means, which are connected, or the click of a mouse as an opportunity, and it transmits the frame to the conference device 1. The reception means 11 of the device 1 obtains the operation right request frames from the respective terminals 3 in an arriving order. An operation right control means 12 refers to a state management table 13 and judges whether the operation right request can be received or not. When it can be received, an operation right permission frame is generated and it is broadcast-transmitted from a broadcast transmission means 14 to all the terminals 3. The user can execute all the operations on the proceeding of the conference such as handwriting input and screen display only by the pen input operation, and the users can equally acquire the operation right with such constitution.



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[Date of requesting appeal against examiner's
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[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] Two or more sets of one set of meeting equipment and meeting terminals which perform composition and distribution of addition of speech information and image information are connected through means of communications. In the multi-point teleconference system which holds a conference to coincidence to said each meeting terminal A handwriting input means and a display-output means are connected. For said display-output means of said all meeting terminals While constituting so that the screen (share screen) of the same contents may be displayed and actuation about advance of a meeting, such as a handwriting input and a screen display, may be directed from said handwriting input means Said meeting equipment manages the condition of the Honda point teleconference system unitary, and it carries out [opportunity / said each meeting terminal / the operator guidance performed with said handwriting input means within the meeting terminal concerned]. When the right of actuation is required of said meeting equipment, said meeting equipment The contents of the right demand of actuation concerned by transmitting to all meeting terminals by return immediately by choosing as said share screen one right demand of actuation in which conflict does not occur from the right demands of actuation from said two or more meeting terminals The multi-point teleconference system characterized by having the contention control means of the meeting actuation between the many points which make the condition of all meeting terminals change.

[Claim 2] When said each meeting terminal performs a handwriting input further in addition to each means according to claim 1 When the handwriting input signal inputted by the time it could grant the right of actuation with said meeting equipment is accumulated from said right demand of actuation and the right of actuation was able to be granted The multi-point teleconference system characterized by having the control means transmitted to said all meeting terminals through said meeting equipment while displaying the accumulated handwriting input signal on said display-output means.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to an effective multi-point teleconference system, when holding a conference using the communications partner and meeting terminal of two or more points which were especially distributed by the large area about the multi-point teleconference system which connects and constitutes one meeting equipment and two or more meeting terminals in a communication network.

[0002]

[Description of the Prior Art] as this conventional kind of a multi-point teleconference system, it is based on Watanabe, Sakata, Maeno, etc., for example -- "-- multimedia part dispersion seat conference-system "MERMAID" and the system indicated by (the Information Processing Society of Japan paper magazine, Vol.32, No.9, pp.1200-1209) are known. He is trying for this system to maintain the coordination of the contents of a share screen by forming the following three modes, granting the right of actuation to one set of a meeting terminal, and succeeding the right of actuation in order.

(1) Chairperson nomination mode : the mode in which the right of actuation shifts when the chairperson nominates the following carrier.

(2) The mode which shifts to the person who demanded the right of actuation early most. When the right carrier of actuation abandons the right of actuation, it shifts to a degree.

(3) Baton mode : the mode in which the current right carrier of actuation nominates and acts as Takayuki of the next man like a baton pass.

[0003]

[Problem(s) to be Solved by the Invention] In the above-mentioned conventional technique, the user of a meeting terminal has to perform the procedure for surely acquiring the right of actuation before meeting actuation (after) (release). Furthermore, when chairperson nomination mode and baton mode are specified, it is necessary to nominate those who grant the right of actuation next. In such a human interface, since a user needed to be conscious of the right acquisition procedure of actuation, thinking was interrupted, the effectiveness of a meeting worsened, or acquisition of the right of actuation took time amount, and there was a problem that meeting time amount became long. The place which this invention was made in view of the above-mentioned situation, and is made into the purpose Solve the problem like **** in a Prior art, and it carries out an opportunity [the click of the pen down (pen approach) or mouse from a handwriting input means or a display-output means connected to the meeting terminal]. A meeting terminal is by requiring the right of actuation of meeting equipment to offer the multi-point teleconference system by which a user can perform all actuation about meeting advance of a handwriting input, a screen display, etc. only by pen alter operation. Moreover, other purposes of this invention are to offer the multi-point teleconference system which can acquire the right of actuation equally, without a user being conscious of a procedure, when meeting equipment chooses as a share screen only the right demand of actuation in which conflict does not occur.

[0004]

[Means for Solving the Problem] In the multi-point teleconference system by which it connects through means of communications, and two or more sets of one set of meeting equipment and meeting terminals with which the above-mentioned purpose of this invention performs composition and distribution of addition of speech information and image information hold a conference to coincidence A handwriting input means and a display-output means are connected to said each meeting terminal. For said display-output means of said all meeting terminals While constituting so that the screen (share screen) of the same contents may be displayed and actuation about advance of

a meeting, such as a handwriting input and a screen display, may be directed from said handwriting input means. Said meeting equipment manages the condition of the Honda point teleconference system unitary, and it carries out [opportunity / said each meeting terminal / the operator guidance performed with said handwriting input means within the meeting terminal concerned]. When the right of actuation is required of said meeting equipment, said meeting equipment The contents of the right demand of actuation concerned by transmitting to all meeting terminals by return immediately by choosing as said share screen one right demand of actuation in which conflict does not occur from the right demands of actuation from said two or more meeting terminals. The multi-point teleconference system characterized by having the contention control means of the meeting actuation between the many points which make the condition of all meeting terminals change, And when said each meeting terminal performs a handwriting input further in addition to each above-mentioned means. When the handwriting input signal inputted by the time it could grant the right of actuation with said meeting equipment is accumulated from said right demand of actuation and the right of actuation was able to be granted. It is attained by the multi-point teleconference system characterized by having the control means transmitted to said all meeting terminals through said meeting equipment while displaying the accumulated handwriting input signal on said display-output means.

[0005]

[Function] In the multi-point teleconference system concerning this invention, based on the select command by the click of the pen down (pen approach) or mouse from a handwriting input means or a display-output means connected to the meeting terminal by the user etc., a meeting terminal searches a command table, and creates the right demand frame of actuation using the retrieval result, and it transmits to meeting equipment through means of communications. A status management table is used for meeting equipment, and it judges whether the right demand of actuation is receivable, when it can receive, after it updates a status management table, creates the right authorization frame of actuation, and carries out multiple address transmission through means of communications at all meeting terminals. Based on the right authorization frame of actuation, each meeting terminal searches a command table, gains a command, and starts the command concerned. In the multi-point teleconference system concerning this invention By having enabled actuation like ****, contention control of the meeting actuation between many points is realized. A user all actuation about meeting advance of a handwriting input, a screen display, etc. Since it becomes possible to perform meeting actuation equally, without becoming possible to carry out only by pen alter operation, and being conscious of a procedure and it is lost that thinking is interrupted for the right acquisition of actuation, or acquisition of the right of actuation takes time amount. While shortening meeting time amount, the dues of a communication network are reducible.

[0006]

[Example] Hereafter, the example of this invention is explained to a detail based on a drawing. Drawing 1 is the block diagram of the multi-point teleconference system (only henceforth a "system") concerning one example of this invention. In drawing, the meeting equipment with which 1 performs informational collection and distribution to the meeting terminal 3, the communication network to which 2 connects meeting equipment 1 and two or more meeting terminals 3, and 3 are meeting terminals (#1 - #N) which hold a conference through a communication network 2. A receiving means 11 by which above-mentioned meeting equipment 1 receives the right demand frame of actuation from the meeting terminal 3, The right control means 12 of actuation which judges whether the right demand of actuation is receivable with reference to the status management table 13 mentioned later from the right demand frame of actuation received with this receiving means 11, and carries out right authorization frame creation of actuation when it can receive, It consists of multiple address transmitting means 14 which carry out multiple address transmission of the right authorization frame of actuation at all meeting terminals (#1 - #N) through the status management table 13 which registers the information which shows the present system state and the condition of each meeting terminal 3, and the communication network 2. In addition, the right control means 12 of actuation also performs management of renewal of the contents of the above-mentioned status management table 13 etc.

[0007] Moreover, a select command means 31 by which the meeting terminal 3 acquires one command name by operator actuation of the right demand of actuation, menu selection, icon selection, etc., The activation code which consists of a check code 22 for judging whether a command can be started by the command code 21 which identifies a command, and the present system state, and a permission code 23 which sets up the condition in command execution (for details, it mentions later), Based on the command table 32 which consists of sets of a command name, and the command name received from the above-mentioned select command means 31. A right demand generation means 33 of actuation to acquire the activation code which searches the command table 32 and corresponds, and to generate the right demand frame of actuation, A right authorization receptionist means 36 of

actuation to take out an activation code and to acquire the command name which searches the above-mentioned command table 32 and corresponds based on the taken-out activation code from the right authorization frame of actuation received from meeting equipment 1, The command name received from this right authorization receptionist means 36 of actuation was used, and it has a command execution means 37 to start a command. In addition, 34 in drawing 1 and 35 show the transmitting means and receiving means for transmitting and receiving the data to meeting equipment 1 through a communication network 2 from the meeting terminal 3.

[0008] An example of the format of the above-mentioned right demand frame of actuation and the right authorization frame of actuation to drawing 2 is shown. The above-mentioned right demand frame of actuation or the right authorization frame of actuation consists of a terminal number and an activation code.

(1) terminal-number: -- case [of the right demand frame of actuation]: -- the terminal number of the meeting terminal which requires the right of actuation is shown in meeting equipment. In the case of the right authorization frame of actuation: Meeting equipment shows the terminal number of a meeting terminal which granted the right of actuation.

(2) activation code: -- case [of the right demand frame of actuation]: -- the control information which the contents and meeting equipment of the right demand of actuation use for receptionist decision of the right demand of actuation is shown. In the case of the right authorization frame of actuation: Meeting equipment shows the contents of the right demand of actuation which granted the right of actuation. An activation code consists of the command codes, check codes, and permission codes which are shown below.

[0009] (a) Command code (21) : the contents of the right demand of actuation are shown and there are a handwriting input, screen rolling, screen contraction, printing, etc.

(b) Check code (22) : meeting equipment is the control information used for receptionist decision of the right demand of actuation. The processing classification of a command is shown and it is set as command code and 1:1. As a processing classification, handwriting input process, pointing display processing, on-line processing that all meeting terminals synchronize and executes a command, and off-line processing to which one set of a meeting terminal executes a command alone occur.

(c) Permission code (23) : while executing a command, the processing classification which can be performed to coincidence is shown and it is set as command code and 1:1.

The example of a setting of the check code of the various processings used by the teleconference system and a permission code is shown in drawing 7 . In the example shown in drawing 7 , even if one set of a meeting terminal is during a pointing display process, if other meeting terminals require a pointing display process, two or more sets of a reception eclipse and meeting terminals can carry out a pointing display process to coincidence, for example. Moreover, off-line processing like the printing processing to coincidence of two or more sets of meeting terminals can be carried out similarly.

[0010] Hereafter, the right acquisition procedure of actuation in the system of constituted this example is explained based on drawing 3 like ****.

(1) A setup at the time of meeting terminal installation : determine an activation code as the menu item which a user chooses 1:1, and set the same value as all meeting terminals.

(2) The right acquisition procedure of actuation under meeting : describe below the procedure in which a meeting terminal acquires the right of actuation.

(a) A user chooses a menu item by the pen input. Ignited by a pen down, by actuation like the above-mentioned, a meeting terminal acquires the activation code corresponding to a menu item with the right demand generation means 33 of actuation, creates the right demand frame of actuation based on this, and transmits it to meeting equipment (** of drawing 3).

(b) Meeting equipment acquires the right demand frame of actuation from each meeting terminal in order of arrival, and receives the right demand of actuation to which conflict does not occur in the contents of a screen of a display-output means. When conflict occurs in the contents of a screen, the right demand of actuation is canceled (** of drawing 3).

[0011] (c) In case meeting equipment receives the right demand of actuation, it creates the right authorization frame of actuation, and carries out multiple address transmission at all meeting terminals (** of drawing 3).

(d) A meeting terminal will execute the command corresponding to a menu item, if the right authorization frame of actuation is received, consequently the right of actuation is granted (** of drawing 3).

(e) A meeting terminal transmits the right demand frame of actuation which shows "the waiting for the right demand of actuation" to meeting equipment after processing termination of a command (** of drawing 3).

(f) Meeting equipment receives the right demand frame of actuation from the meeting terminal which has a right of actuation (** of drawing 3).

(g) Meeting equipment carries out multiple address transmission of the right demand frame of actuation which shows "the waiting for the right demand of actuation" at all meeting terminals (** of drawing 3).

By repeating a series of above-mentioned procedures, it enables a user to perform meeting actuation. Next, the status management approach of a system etc. is explained.

[0012] The condition of a system is defined as follows. Meeting equipment manages the condition of a system and makes a condition a check code and a permission code change to a trigger (refer to drawing 4 and drawing 5).

** Right demand waiting state of actuation 1 (condition of drawing 4 : S*0) icon screen condition.

** Right demand waiting state of actuation 2 (condition of drawing 4 : S*3) menu-screen condition. ** It can change by receiving the right demand of actuation of menu screen shift from a condition, and the right demand of actuation of on-line processing and off-line processing can be received.

** It can restrict to the right demand of actuation of off-line processing from a meeting terminal besides the condition in off-line processing (the condition of drawing 4 : S*7), and can receive.

** It can restrict to the right demand of actuation of the pointing display process from a meeting terminal besides the condition in a pointing display process (the condition of drawing 4 : S*d), and can receive.

[0013] ** Any right demands of actuation from a meeting terminal besides a condition (the condition of drawing 4 : S1f) receive and are impossible during handwriting processing.

** Any right demands of actuation from a meeting terminal besides the condition in on-line processing (the condition of drawing 4 : S4f) receive and are impossible.

Next, the receptionist decision approach of the right demand of actuation is explained. Using the condition of a system, meeting equipment makes a receptionist judgment of the right demand of actuation so that conflict may not occur in the contents of a screen. A system state code is given corresponding to the condition of an above-mentioned system, and it is defined as n of condition:Smn. The system state codes 0, 3, and 7 and the value of d and f can be taken. The procedure of receptionist decision is shown below.

(a) Meeting equipment acquires the right demand frame of actuation (P5 of drawing 4).

(b) Meeting equipment calculates the AND of a check code and a system state code (P7 of drawing 4).

(c) If a count result is "0", the right demand of actuation will be received ("O.K." of drawing 4). On the other hand, when a join is not "0", the right demand of actuation is canceled ("-O.K." of drawing 4).

[0014] A ** timing diagram is hereafter used for drawing 6 by making handwriting input process into an example, and the right acquisition procedure of actuation is explained.

(a) Set up the activation code of "0x011f" and the right demand waiting of actuation for the activation code of handwriting input process with "0x0000" at the time of meeting terminal installation.

(b) When the icon screen is displayed, the condition of a system is S*0 and a system state code is "0."

(c) By pen down, a meeting terminal transmits the right demand frame of actuation (activation code = "0x011f") to meeting equipment (** of drawing 6).

(d) A meeting terminal accumulates a handwriting input signal until it acquires the right of actuation. This condition hits between **s of drawing 6 .

(e) Meeting equipment calculates the AND of a check code ("1") and the condition code ("0") of a system, and since a result is "0", it receives the right demand of actuation. Furthermore, the condition of a system is made to change from S*0 to S1f by making a check code and a permission code ("1f") into a trigger. Consequently, a system state code is set to "f." Then, multiple address transmission of the right authorization frame of actuation (activation code = "0x011f") is carried out.

[0015] (f) Acquire the right of actuation from meeting equipment by receiving the right authorization frame of actuation of a self-meeting terminal number (** of drawing 6). The meeting terminal concerned is transmitted to other meeting terminals via meeting equipment while it displays the accumulated handwriting input signal on a display-output means.

(g) Transmit the meeting terminal concerned to other meeting terminals via meeting equipment while holding the right of actuation and it displays a handwriting input signal on a display-output means. This condition hits between **s of drawing 6 .

(h) If the user of the meeting terminal which holds the right of actuation does a pen rise and fixed time amount passes, the meeting terminal concerned will transmit the right demand frame of actuation (activation code = "0x0000") to meeting equipment (** of drawing 6).

(i) Meeting equipment calculates the AND of a check code ("0") and the condition code ("f") of a system, and since a result is "0", it receives the right demand of actuation. Furthermore, the condition of a system is made to change from S1f to S*0 by making CHIEKKODO and a permission code ("00") into a trigger. Consequently, a system state code is set to "0." Then, multiple address transmission of the right authorization frame of actuation (activation code = "0x0000") is carried out.

[0016] (j) By receiving the right authorization frame of actuation from meeting equipment, all meeting terminals get to know that the right of actuation was released. Thereby, all meeting terminals change to the right demand waiting state of actuation.

According to the above-mentioned example, require the right of actuation of meeting equipment ignited by a user's pen down (pen approach) or the click of a mouse, and the status management table of meeting equipment is used. Since it judges whether the right demand of actuation from a meeting terminal is receivable, multiple address transmission of the right authorization frame of actuation will be carried out at all meeting terminals if a receptionist is possible, and each meeting terminal was made to perform the processing concerned based on the right authorization frame of actuation Contention control of the meeting actuation between many points can be realized, and a user can perform now all actuation about meeting advance of a handwriting input, a screen display, etc. only by pen alter operation. Since meeting actuation can be performed equally, without being conscious of a procedure, while it is lost that thinking is interrupted for the right acquisition of actuation, or acquisition of the right of actuation takes time amount and being able to shorten meeting time amount, the effectiveness that the dues of a communication network are reducible is acquired. In addition, the above-mentioned example shows an example of this invention, and it is a thing needless to say that this invention is not what should be limited to this.

[0017]
[Effect of the Invention] as mentioned above, as explained to the detail, according to this invention, from the handwriting input means connected to the meeting terminal When a meeting terminal requires the right of actuation of meeting equipment ignited by the click of PE <TXF FR=0002 HE=035 WI=080 LX=1100 LY=0300> NDAUN (pen approach) or a mouse While a user can perform all actuation about meeting advance of a handwriting input, a screen display, etc. only in a pen input, the remarkable effectiveness that the multi-point teleconference system which enabled it to perform meeting actuation equally being unconscious of the acquisition procedure of the right of actuation is realizable is done so.

[Translation done.]

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TECHNICAL FIELD

[Industrial Application] This invention relates to an effective multi-point teleconference system, when holding a conference using the communications partner and meeting terminal of two or more points which were especially distributed by the large area about the multi-point teleconference system which connects and constitutes one meeting equipment and two or more meeting terminals in a communication network.

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PRIOR ART

[Description of the Prior Art] as this conventional kind of a multi-point teleconference system, it is based on Watanabe, Sakata, Maeno, etc., for example -- "-- multimedia part dispersion seat conference-system "MERMAID" and the system indicated by (the Information Processing Society of Japan paper magazine, Vol.32, No.9, pp.1200-1209) are known. He is trying for this system to maintain the coordination of the contents of a share screen by forming the following three modes, granting the right of actuation to one set of a meeting terminal, and succeeding the right of actuation in order.

- (1) Chairperson nomination mode : the mode in which the right of actuation shifts when the chairperson nominates the following carrier.
- (2) The mode which shifts to the person who demanded the right of actuation early most. When the right carrier of actuation abandons the right of actuation, it shifts to a degree.
- (3) Baton mode : the mode in which the current right carrier of actuation nominates and acts as Takayuki of the next man like a baton pass.

[0003]

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EFFECT OF THE INVENTION

[Effect of the Invention] As mentioned above, as explained to the detail, in this invention, a meeting terminal requires the right of actuation of meeting equipment ignited by the click of the pen down (pen approach) or mouse from a handwriting input means connected to the meeting terminal. Therefore, while a user can perform all actuation about meeting advance of a handwriting input, a screen display, etc. only in a pen input, the remarkable effectiveness that the multi-point teleconference system which enabled it to perform meeting actuation equally being unconscious of the acquisition procedure of the right of actuation is realizable is done so.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In the above-mentioned conventional technique, the user of a meeting terminal has to perform the procedure for surely acquiring the right of actuation before meeting actuation (after) (release). Furthermore, when chairperson nomination mode and baton mode are specified, it is necessary to nominate those who grant the right of actuation next. In such a human interface, since a user needed to be conscious of the right acquisition procedure of actuation, thinking was interrupted, the effectiveness of a meeting worsened, or acquisition of the right of actuation took time amount, and there was a problem that meeting time amount became long. The place which this invention was made in view of the above-mentioned situation, and is made into the purpose Solve the problem like **** in a Prior art, and it carries out an opportunity [the click of the pen down (pen approach) or mouse from a handwriting input means or a display-output means connected to the meeting terminal]. A meeting terminal is by requiring the right of actuation of meeting equipment to offer the multi-point teleconference system by which a user can perform all actuation about meeting advance of a handwriting input, a screen display, etc. only by pen alter operation. Moreover, other purposes of this invention are to offer the multi-point teleconference system which can acquire the right of actuation equally, without a user being conscious of a procedure, when meeting equipment chooses as a share screen only the right demand of actuation in which conflict does not occur.

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MEANS

[Means for Solving the Problem] In the multi-point teleconference system by which it connects through means of communications, and two or more sets of one set of meeting equipment and meeting terminals with which the above-mentioned purpose of this invention performs composition and distribution of addition of speech information and image information hold a conference to coincidence A handwriting input means and a display-output means are connected to said each meeting terminal. For said display-output means of said all meeting terminals While constituting so that the screen (share screen) of the same contents may be displayed and actuation about advance of a meeting, such as a handwriting input and a screen display, may be directed from said handwriting input means Said meeting equipment manages the condition of the Honda point teleconference system unitary, and it carries out [opportunity / said each meeting terminal / the operator guidance performed with said handwriting input means within the meeting terminal concerned]. When the right of actuation is required of said meeting equipment, said meeting equipment The contents of the right demand of actuation concerned by transmitting to all meeting terminals by return immediately by choosing as said share screen one right demand of actuation in which conflict does not occur from the right demands of actuation from said two or more meeting terminals The multi-point teleconference system characterized by having the contention control means of the meeting actuation between the many points which make the condition of all meeting terminals change, And when said each meeting terminal performs a handwriting input further in addition to each above-mentioned means When the handwriting input signal inputted by the time it could grant the right of actuation with said meeting equipment is accumulated from said right demand of actuation and the right of actuation was able to be granted It is attained by the multi-point teleconference system characterized by having the control means transmitted to said all meeting terminals through said meeting equipment while displaying the accumulated handwriting input signal on said display-output means.

[0005]

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OPERATION

[Function] In the multi-point teleconference system concerning this invention, based on the select command by the click of the pen down (pen approach) or mouse from a handwriting input means or a display-output means connected to the meeting terminal by the user etc., a meeting terminal searches a command table, and creates the right demand frame of actuation using the retrieval result, and it transmits to meeting equipment through means of communications. A status management table is used for meeting equipment, and it judges whether the right demand of actuation is receivable, when it can receive, after it updates a status management table, creates the right authorization frame of actuation, and carries out multiple address transmission through means of communications at all meeting terminals. Based on the right authorization frame of actuation, each meeting terminal searches a command table, gains a command, and starts the command concerned. In the multi-point teleconference system concerning this invention, By having enabled actuation like ****, contention control of the meeting actuation between many points is realized. A user all actuation about meeting advance of a handwriting input, a screen display, etc. Since it becomes possible to perform meeting actuation equally, without becoming possible to carry out only by pen alter operation, and being conscious of a procedure and it is lost that thinking is interrupted for the right acquisition of actuation, or acquisition of the right of actuation takes time amount While shortening meeting time amount, the dues of a communication network are reducible.

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EXAMPLE

[Example] Hereafter, the example of this invention is explained to a detail based on a drawing. Drawing 1 is the block diagram of the multi-point teleconference system (only henceforth a "system") concerning one example of this invention. In drawing, the meeting equipment with which 1 performs informational collection and distribution to the meeting terminal 3, the communication network to which 2 connects meeting equipment 1 and two or more meeting terminals 3, and 3 are meeting terminals (#1 - #N) which hold a conference through a communication network 2. A receiving means 11 by which above-mentioned meeting equipment 1 receives the right demand frame of actuation from the meeting terminal 3, The right control means 12 of actuation which judges whether the right demand of actuation is receivable with reference to the status management table 13 mentioned later from the right demand frame of actuation received with this receiving means 11, and carries out right authorization frame creation of actuation when it can receive, It consists of multiple address transmitting means 14 which carry out multiple address transmission of the right authorization frame of actuation at all meeting terminals (#1 - #N) through the status management table 13 which registers the information which shows the present system state and the condition of each meeting terminal 3, and the communication network 2. In addition, the right control means 12 of actuation also performs management of renewal of the contents of the above-mentioned status management table 13 etc.

[0007] Moreover, a select command means 31 by which the meeting terminal 3 acquires one command name by operator actuation of the right demand of actuation, menu selection, icon selection, etc., The activation code which consists of a check code 22 for judging whether a command can be started by the command code 21 which identifies a command, and the present system state, and a permission code 23 which sets up the condition in command execution (for details, it mentions later), Based on the command table 32 which consists of sets of a command name, and the command name received from the above-mentioned select command means 31 A right demand generation means 33 of actuation to acquire the activation code which searches the command table 32 and corresponds, and to generate the right demand frame of actuation, A right authorization receptionist means 36 of actuation to take out an activation code and to acquire the command name which searches the above-mentioned command table 32 and corresponds based on the taken-out activation code from the right authorization frame of actuation received from meeting equipment 1, The command name received from this right authorization receptionist means 36 of actuation was used, and it has a command execution means 37 to start a command. In addition, 34 in drawing 1 and 35 show the transmitting means and receiving means for transmitting and receiving the data to meeting equipment 1 through a communication network 2 from the meeting terminal 3.

[0008] An example of the format of the above-mentioned right demand frame of actuation and the right authorization frame of actuation to drawing 2 is shown. The above-mentioned right demand frame of actuation or the right authorization frame of actuation consists of a terminal number and an activation code.

(1) terminal-number: -- case [of the right demand frame of actuation]: -- the terminal number of the meeting terminal which requires the right of actuation is shown in meeting equipment. In the case of the right authorization frame of actuation: Meeting equipment shows the terminal number of a meeting terminal which granted the right of actuation.

(2) activation code: -- case [of the right demand frame of actuation]: -- the control information which the contents and meeting equipment of the right demand of actuation use for receptionist decision of the right demand of actuation is shown. In the case of the right authorization frame of actuation: Meeting equipment shows the contents of the right demand of actuation which granted the right of actuation. An activation code consists of the command codes, check codes, and permission codes which are shown below.

[0009] (a) Command code (21) : the contents of the right demand of actuation are shown and there are a handwriting input, screen rolling, screen contraction, printing, etc.

(b) Check code (22) : meeting equipment is the control information used for receptionist decision of the right demand of actuation. The processing classification of a command is shown and it is set as command code and 1:1. As a processing classification, handwriting input process, pointing display processing, on-line processing that all meeting terminals synchronize and executes a command, and off-line processing to which one set of a meeting terminal executes a command alone occur.

(c) Permission code (23) : while executing a command, the processing classification which can be performed to coincidence is shown and it is set as command code and 1:1.

The example of a setting of the check code of the various processings used by the teleconference system and a permission code is shown in drawing 7 . In the example shown in drawing 7 , even if one set of a meeting terminal is during a pointing display process, if other meeting terminals require a pointing display process, two or more sets of a reception eclipse and meeting terminals can carry out a pointing display process to coincidence, for example. Moreover, off-line processing like the printing processing to coincidence of two or more sets of meeting terminals can be carried out similarly.

[0010] Hereafter, the right acquisition procedure of actuation in the system of constituted this example is explained based on drawing 3 like ****.

(1) A setup at the time of meeting terminal installation : determine an activation code as the menu item which a user chooses 1:1, and set the same value as all meeting terminals.

(2) The right acquisition procedure of actuation under meeting : describe below the procedure in which a meeting terminal acquires the right of actuation.

(a) A user chooses a menu item by the pen input. Ignited by a pen down, by actuation like the above-mentioned, a meeting terminal acquires the activation code corresponding to a menu item with the right demand generation means 33 of actuation, creates the right demand frame of actuation based on this, and transmits it to meeting equipment (** of drawing 3).

(b) Meeting equipment acquires the right demand frame of actuation from each meeting terminal in order of arrival, and receives the right demand of actuation to which conflict does not occur in the contents of a screen of a display-output means. When conflict occurs in the contents of a screen, the right demand of actuation is canceled (** of drawing 3).

[0011] (c) In case meeting equipment receives the right demand of actuation, it creates the right authorization frame of actuation, and carries out multiple address transmission at all meeting terminals (** of drawing 3).

(d) A meeting terminal will execute the command corresponding to a menu item, if the right authorization frame of actuation is received, consequently the right of actuation is granted (** of drawing 3).

(e) A meeting terminal transmits the right demand frame of actuation which shows "the waiting for the right demand of actuation" to meeting equipment after processing termination of a command (** of drawing 3).

(f) Meeting equipment receives the right demand frame of actuation from the meeting terminal which has a right of actuation (** of drawing 3).

(g) Meeting equipment carries out multiple address transmission of the right demand frame of actuation which shows "the waiting for the right demand of actuation" at all meeting terminals (** of drawing 3).

By repeating a series of above-mentioned procedures, it enables a user to perform meeting actuation. Next, the status management approach of a system etc. is explained.

[0012] The condition of a system is defined as follows. Meeting equipment manages the condition of a system and makes a condition a check code and a permission code change to a trigger (refer to drawing 4 and drawing 5).

** Right demand waiting state of actuation 1 (condition of drawing 4 : S*0) icon screen condition.

** Right demand waiting state of actuation 2 (condition of drawing 4 : S*3) menu-screen condition. ** It can change by receiving the right demand of actuation of menu screen shift from a condition, and the right demand of actuation of on-line processing and off-line processing can be received.

** It can restrict to the right demand of actuation of off-line processing from a meeting terminal besides the condition in off-line processing (the condition of drawing 4 : S*7), and can receive.

** It can restrict to the right demand of actuation of the pointing display process from a meeting terminal besides the condition in a pointing display process (the condition of drawing 4 : S*d), and can receive.

[0013] ** Any right demands of actuation from a meeting terminal besides a condition (the condition of drawing 4 : S1f) receive and are impossible during handwriting processing.

** Any right demands of actuation from a meeting terminal besides the condition in on-line processing (the condition of drawing 4 : S4f) receive and are impossible.

Next, the receptionist decision approach of the right demand of actuation is explained. Using the condition of a system, meeting equipment makes a receptionist judgment of the right demand of actuation so that conflict may not occur in the contents of a screen. A system state code is given corresponding to the condition of an above-mentioned system, and it is defined as n of condition:Smn. The system state codes 0, 3, and 7 and the value of d and f can be taken. The procedure of receptionist decision is shown below.

- (a) Meeting equipment acquires the right demand frame of actuation (P5 of drawing 4).
- (b) Meeting equipment calculates the AND of a check code and a system state code (P7 of drawing 4).
- (c) If a count result is "0", the right demand of actuation will be received ("O.K." of drawing 4). On the other hand, when a join is not "0", the right demand of actuation is canceled ("-O.K." of drawing 4).

[0014] A ** timing diagram is hereafter used for drawing 6 by making handwriting input process into an example, and the right acquisition procedure of actuation is explained.

- (a) Set up the activation code of "0x011f" and the right demand waiting of actuation for the activation code of handwriting input process with "0x0000" at the time of meeting terminal installation.
- (b) When the icon screen is displayed, the condition of a system is S*0 and a system state code is "0."
- (c) By pen down, a meeting terminal transmits the right demand frame of actuation (activation code = "0x011f") to meeting equipment (** of drawing 6).

(d) A meeting terminal accumulates a handwriting input signal until it acquires the right of actuation. This condition hits between **s of drawing 6.

(e) Meeting equipment calculates the AND of a check code ("1") and the condition code ("0") of a system, and since a result is "0", it receives the right demand of actuation. Furthermore, the condition of a system is made to change from S*0 to S1f by making a check code and a permission code ("1f") into a trigger. Consequently, a system state code is set to "f." Then, multiple address transmission of the right authorization frame of actuation (activation code = "0x011f") is carried out.

[0015] (f) Acquire the right of actuation from meeting equipment by receiving the right authorization frame of actuation of a self-meeting terminal number (** of drawing 6). The meeting terminal concerned is transmitted to other meeting terminals via meeting equipment while it displays the accumulated handwriting input signal on a display-output means.

(g) Transmit the meeting terminal concerned to other meeting terminals via meeting equipment while holding the right of actuation and it displays a handwriting input signal on a display-output means. This condition hits between **s of drawing 6.

(h) If the user of the meeting terminal which holds the right of actuation does a pen rise and fixed time amount passes, the meeting terminal concerned will transmit the right demand frame of actuation (activation code = "0x0000") to meeting equipment (** of drawing 6).

(i) Meeting equipment calculates the AND of a check code ("0") and the condition code ("f") of a system, and since a result is "0", it receives the right demand of actuation. Furthermore, the condition of a system is made to change from S1f to S*0 by making CHIEKKODO and a permission code ("00") into a trigger. Consequently, a system state code is set to "0." Then, multiple address transmission of the right authorization frame of actuation (activation code = "0x0000") is carried out.

[0016] (j) By receiving the right authorization frame of actuation from meeting equipment, all meeting terminals get to know that the right of actuation was released. Thereby, all meeting terminals change to the right demand waiting state of actuation.

According to the above-mentioned example, require the right of actuation of meeting equipment ignited by a user's pen down (pen approach) or the click of a mouse, and the status management table of meeting equipment is used. Since it judges whether the right demand of actuation from a meeting terminal is receivable, multiple address transmission of the right authorization frame of actuation will be carried out at all meeting terminals if a receptionist is possible, and each meeting terminal was made to perform the processing concerned based on the right authorization frame of actuation. Contention control of the meeting actuation between many points can be realized, and a user can perform now all actuation about meeting advance of a handwriting input, a screen display, etc. only by pen alter operation. Since meeting actuation can be performed equally, without being conscious of a procedure, while it is lost that thinking is interrupted for the right acquisition of actuation, or acquisition of the right of actuation takes time amount and being able to shorten meeting time amount, the effectiveness that the dues of a communication network are reducible is acquired. In addition, the above-mentioned example shows an example of this invention, and it is a thing needless to say that this invention is not what should be limited to this.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the teleconference structure of a system concerning one example of this invention.

[Drawing 2] It is drawing showing a format of the right demand frame of actuation concerning an example, and the right authorization frame of actuation.

[Drawing 3] It is the explanatory view of the right acquisition procedure of actuation concerning an example.

[Drawing 4] It is the state transition diagram of the system concerning an example.

[Drawing 5] It is the explanatory view of the notation in drawing 4.

[Drawing 6] It is the timing diagram of the handwriting input process concerning an example.

[Drawing 7] It is drawing showing the example of a setting of the check code and permission code concerning an example.

[Description of Notations]

1: Meeting equipment, 2: communication network, 3: meeting terminal (#1 - #N), a 11: receiving means, 12: priority control means, 13: status management table, 14: multiple address transmitting means, 21: command code, 22: check code, 23: permission code, 31: select command means, 32: command table, the right demand generation means of 33: actuation, a 34: transmitting means, a 35: receiving means, the right authorization receptionist means of 36: actuation, 37: command execution means.

[Translation done.]

* NOTICES *

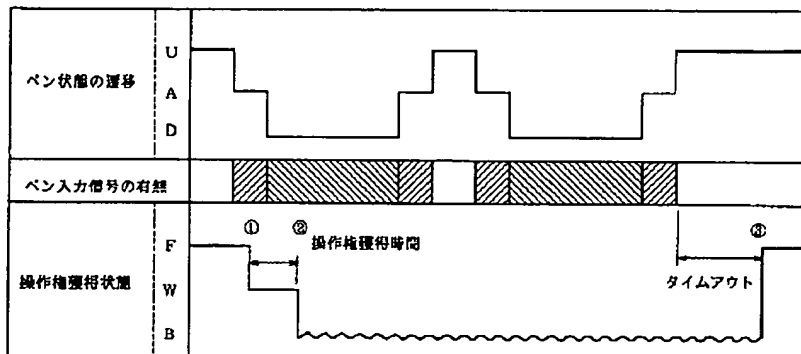
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DRAWINGS

[Drawing 6]

手書き入力処理のタイムチャート



【凡例】

時間 →

・ペン状態

U : ペンアップ状態

A : ペン接近状態

D : ペンダウン状態

・操作権獲得状態

F : 操作権解放状態

W : 操作権獲得待状態

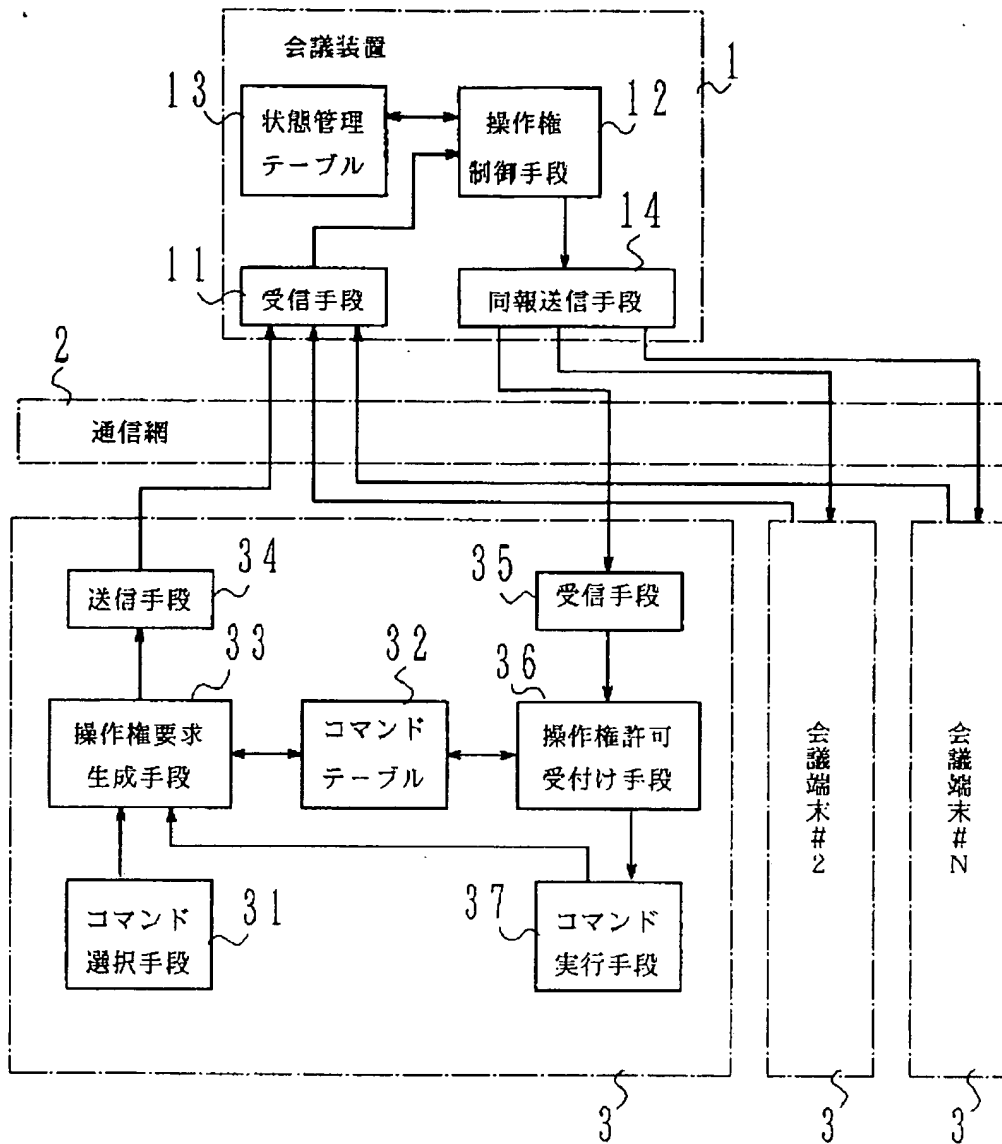
B : 操作権獲得状態

▨ : ペン接近信号有

▨ : ペンダウン信号有

[Drawing 1]

実施例に係るシステムの構成図



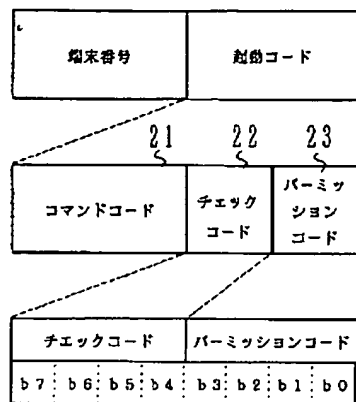
[Drawing 7]

チェックコードおよびパーミッションコードの設定例

処理名	チェックコード	パーミッションコード
手書き入力処理	0 0 0 1	1 1 1 1
ポインティング表示処理	0 0 1 0	1 1 0 1
画面縮小処理	0 1 0 0	1 1 1 1
印刷処理	1 0 0 0	0 1 1 1

[Drawing 2]

操作権要求（許可）フレームのフォーマット

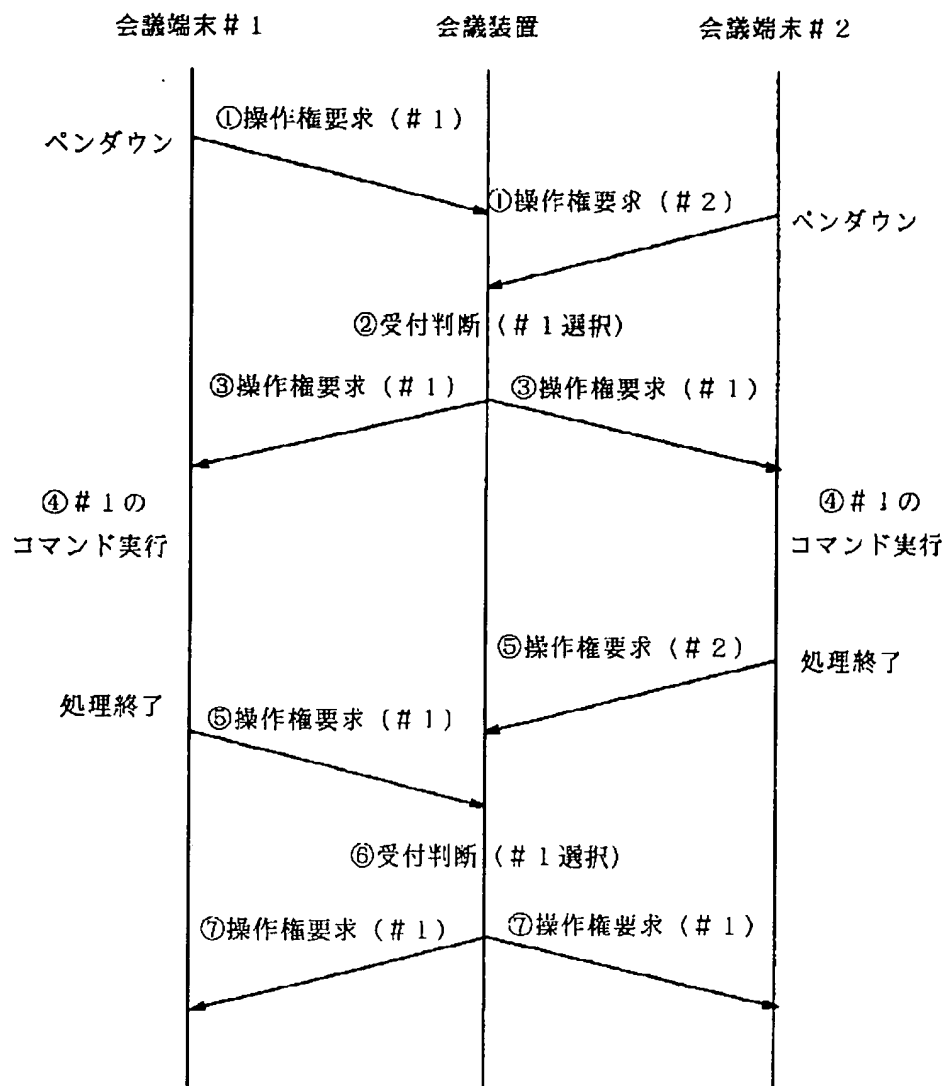


(注)

- ・チェックコードのビットの意味
 - b 7 : オフライン処理
 - b 6 : オンライン処理
 - b 5 : ボインティング表示処理
 - b 4 : 手書き入力処理
- ・パーミッションコードの意味
 - b 3 : オフライン処理禁止
 - b 2 : オンライン処理禁止
 - b 1 : ボインティング表示処理禁止
 - b 0 : 手書き入力処理禁止

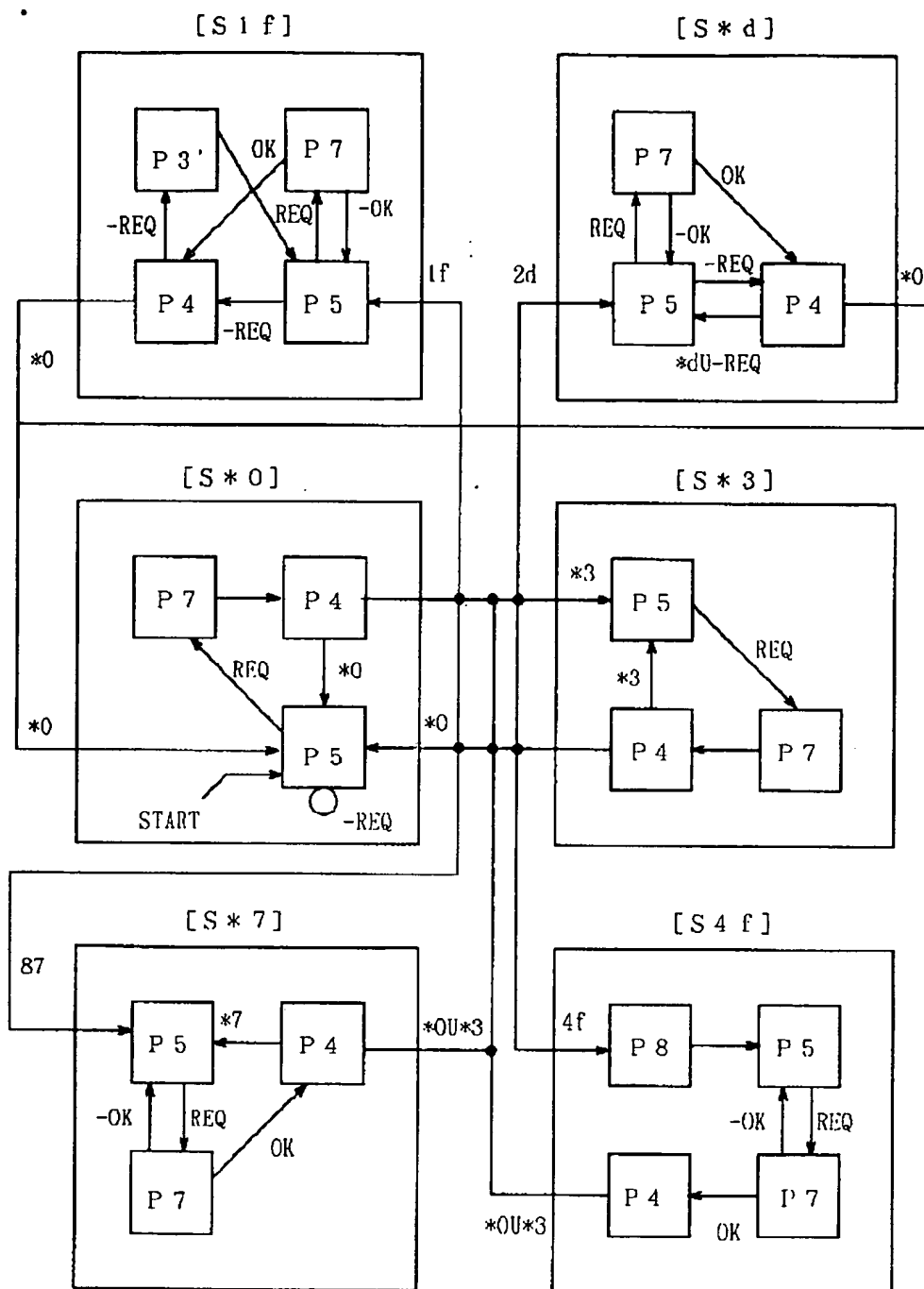
[Drawing 3]

操作権獲得手順



[Drawing 4]

システム状態遷移図



[Drawing 5]

・ 状態

S * 0 : 操作権要求待状態 1 (アイコン状態)

S * 3 : 操作権要求待状態 2 (メニュー状態)

S * 7 : オフライン処理中状態

S * d : ポインティング表示処理中状態

S 1 f : 手書き処理中状態

S 4 f : オンライン処理中状態

P 3' : 表示処理中状態

P 4 : 同報送信処理状態

P 5 : 受信処理中状態

P 7 : 操作権要求受付処理状態

P 8 : A P 処理中状態

・ 遷移条件

R E Q (- R E Q) : 操作権要求有 (無)

O K (- O K) : 操作権要求受付 (破棄)

i j :

i = チェックコード

j = パーミッションコード

* = d o n ' t c a r e

U : O R 条件

[Translation done.]